DEPARTMENT OF ENERGY

POLLUTION PREVENTION GENERATOR SET-ASIDE FEE PILOT PROGRAM

Pilot Assessment and Recommendations

prepared by:

DOE/Albuquerque Operations Office

January 7, 1997

Executive Summary

During fiscal year 1996, three Operations Offices conducted a pilot to provide incentives for pollution prevention (P2) activities. The Generator Set-Aside Fee (GSAF) pilot program collected fees, based on the amount and type of waste generated, to fund projects that would reduce waste generation. In addition to providing a source of P2 funds, the pilot was designed to increase generator awareness and encourage accountability to the Department of Energy's goal of reducing waste generation and the associated costs of managing that waste.

The GSAF pilot has proved to be a success, both in terms of promoting waste reduction and increasing generator awareness. In FY96 a total of $1.9M was collected by the GSAF program at eight DOE sites. Using these funds, 27 waste reduction projects were implemented at a cost of $0.8M, with a projected first-year savings in excess of $5.6M. Over one-third of the collected funds, $0.7M, was carried over into FY97 for additional projects. We believe this program has merit, and strongly encourage the implementation of this, or a similar approach, across the DOE complex. Based on first year cost savings from projects implemented using GSAF funds, a return on investment (ROI) greater than 6:1 was realized. This pilot, if expanded, could conceivably yield as much as $100M in savings from a $15M investment.

Background

At its February 23, 1995 meeting, the Pollution Prevention Executive Board agreed to pilot test a generator set-aside fee program to encourage waste generator accountability, promote waste reduction, and to provide a limited source of funds for actual pollution prevention implementation projects. Participating sites would assess on-site waste generators a small fee based on the type and quantity of waste generated, and then apply these funds to implement waste reduction projects. In the July 13, 1995 memorandum from the Deputy Secretary, the Albuquerque Operations Office was appointed as lead and primary point of coordination among the pilot sites. The participating sites included Los Alamos National Laboratory (LANL), the Sandia National Laboratory/New Mexico (SNL/NM), the Oak Ridge National Laboratory (ORNL), Oak Ridge Y-12 and K-25 plants, the Paducah and Portsmouth Gaseous Diffusion Plants, and the Savannah River Site (SRS).

Development of a formal implementation plan and pilot program was a joint effort between the Albuquerque, Oak Ridge, and Savannah River Operations Offices and a Headquarters team consisting of pollution prevention representatives from Defense Programs (DP), Environmental Management (EM), Energy Research (ER), and the Chief Financial Officer (CFO). The implementation plan, which detailed the operating and financial parameters of

the pilot, was presented to the Principal Deputy Assistant Secretary, EM-2, on February 22, 1996.

The purpose of the pilot demonstration was twofold: first, it was intended to raise awareness at the generator level, by making sure they knew what waste they were generating; and second, to provide a pool of funds that could be used to implement waste reduction projects - this would not only result in reducing the DOE's waste management costs, but would also result in a savings to the generator in terms of lower indirect costs. This document presents the GSAF program's first year's findings and results.

Scope

The pilot program was designed to allow participating sites maximum flexibility in implementing a site-specific program while staying within rigid financial guidelines. In this way, the GSAF pilot tested different approaches at different types of sites, to judge the merits of the GSAF concept and determine the feasibility of complex-wide implementation.

The following table (Figure 1) provides general information on the fees assessed during the pilot phase, broken down by site and waste type. Additional detail on the fee structure and how it was determined is provided in the individual site reports, which are included as attachments.

Figure 1 - **Fee Structure for GSAF Pilot Demonstration (FY96 Rates)**

	TRU	MTRU	LLW	MLLW	RCRA	TSCA
SRS	\$25 / ft^3	\$25 / ft^3	\$1 / ft^3	\$13 / ft^3	\$10 / ft^3	\$10 / ft^3
OR*	\$1 / kg	\$1.50 / kg	\$0.10 / kg	\$0.50 / kg	\$0.40 / kg	\$0.10 / kg
LANL	\$18/ ft^3	\$22.50/ ft^3	\$5.50/ ft^3	\$17.50/ ft^3	\$2.50 / kg	\$0.15 - 2.00 /kg
SNL/N	\$20 / kg	N/A	\$20 / kg	\$30 / kg	\$8 / kg	\$6 / kg

note: table does not include rates for all wastes at all sites, such as state or locally regulated hazardous wastes, or non-routine waste

***** all Oak Ridge sites used the same fee structure in FY96; rates listed in table became effective on 7/1/96; not listed is a \$0.001/kg fee for process waste water and a \$0.15/kg fee for mixed-TSCA waste

In keeping with guidance provided by the DOE's Chief Financial Officer, only site facilities managed by Defense Programs (DP), Environmental Management (EM), Energy Research (ER), and/or Nuclear Energy (NE) participated in the pilot study. Funds collected from individual generators were placed in two "pools" at each site, to provide segregation of "defense" and "non-defense" appropriation funds. A unique series of 'Budget and Reporting' (B&R) codes was created and utilized for the purposes of the GSAF program to track fee accruals and disbursements. Monies obtained through the GSAF program could only be used to fund pollution prevention activities.

The waste types targeted for set-aside fees included all forms of radioactive and mixed waste; hazardous waste regulated by either RCRA or TSCA; and other wastes specifically regulated by the state in which the pilot site resided. Participating sites were allowed to include additional elements in their pilot program as necessary to address site-specific priorities. Fees were based on a relative per-unit cost, with the highest fees associated with those waste types that are the most costly (to DOE) to manage.

Only those wastes manifested to the site's waste management organization were subject to the set-aside fee. In some cases, however, the generating organization could document that they were in fact funding waste management services for some of their wastes streams, even when it was manifested to the site's waste management organization. In those cases, it was decided that an additional fee would not be imposed, with the assumption that an incentive to reduce waste is provided by the cost of managing it. (However, it was noted during the demonstration that paying for waste management does not guarantee that waste reduction will occur, or that funds will be made available for P2.)

To effectively track waste generation to the correct organization, waste could only be accepted by the site waste management organization if it was accompanied by a valid charge and/or account number. Based on these numbers, each participating facility was provided a monthly invoice, detailing their waste generation (by waste type and amount), and the associated set-aside fees debited from their account. These regular invoices were the basis for making generators aware, and accountable, for wastes they produced. Only those generators that paid fees were eligible for GSAF project funding.

Results

The following table (Figure 2) provides the results of each pilot site's program in terms of total fees collected, amounts disbursed for project implementation, and actual as well as projected savings from those projects. Savings include cost avoidance as well as hard dollar savings.

Figure 2 - **Results of Collecting Fees at GSAF Pilot Demonstration Sites**

	total FY96 $$$ collected	**number of projects funded**	**total $$$ disbursed to projects in FY96**	**Actual FY96 savings**	**Projected first-year savings from FY96 projects**
SRS (total)	**$ 406,000**	**7**	**$ 253,000**	**$ 767,000**	**$ 2,333,000**
OR (total)	**$ 174,054**	**6**	**$ 28,648**	**$ 27,500**	**$ 152,488**
ORNL	$ 59,528	1	$ 15,000	$ 12,000	$ 75,000
Y-12	$ 34,886	1	$ 6,428	-0-	$ 39,418
K-25	$ 58,335	2	$ 5,220	$ 15,500	$ 38,070

PADS	$ 20,000	1	$ 1,000	N/A	N/A
PORTS	$ 1,305	1	$ 1,000	N/A	N/A
AL (total)	**$ 1,314,393**	**14**	**$ 490,073**	**$2,044,120**	**$3,184,330**
LANL	$ 718,975	7	$ 444,500	$2,044,120	$3,150,330
SNL/NM	$ 595,418	7	$ 45,573	-0-	$ 34,000
TOTAL	**$ 1,894,447 ***	**27**	**$ 771,721**	**$ 2,838,620**	**$ 5,669,818**

NOTE: A total of $695.8K in GSAF funds was carried over into FY97 for project implementation, broken down as follows: $153K at SRS; $145.4K at OR; $ 262.8K at LANL; and $134.6K at SNL/NM.

The following table (Figure 3) shows the amount of waste avoided at the pilot sites as a result of implementing FY96 projects.

Figure 3 - **First-Year Waste Avoidance from FY96 Projects**

	TRU	LLW	MLLW	MLLW	RCRA	RCRA	SAN
SRS		687 m^3					
OR				206 m^3	6.9 mt	5.7 m^3	440 m^3
AL	8 m^3	848 m^3	18 m^3		2.4 mt		
TOTAL	8 m^3	1535 m^3	18 m^3	206 m^3	9.3 mt	5.7 m^3	440 m^3

NOTE: table represents projected waste avoidance in first full year after implementation of FY96 projects. Some projects funded in FY96 will not be fully implemented until FY97. LLW includes a one-time waste avoidance of 685 m^3 at LANL.

Of the seven projects funded at SRS in FY96, four have been completed. Actual waste reduced from just these four projects total 451 m^3 of LLW, at a savings of $767K per year. Completion of the remaining three projects in FY97 is expected to increase the savings to $2,330K per year.

Oak Ridge committed to implementing at least one P2 project at each of their five sites during the FY96 pilot. Expected yearly waste reductions from these five projects include: 6,872 kg and
5.68 m^3 of hazardous waste; 206,190 kg of MLLW process waste water; and 439,830 kg of sanitary process waste water. Y-12 will not complete project implementation until FY97 - no actual savings were realized in FY96 for this reason. GSAF funds were also used to implement awareness activities at the Paducah and Portsmouth Gaseous Diffusion Plants - actual waste reductions from these projects are not separately quantifiable.

In FY95, LANL instituted a 'Return-on-Investment'-type process to fund projects with set-aside funds. Before this time, during the first years of their "charge-back" program, funds were spent on services more than on projects, which caused dissatisfaction with generators. Their recent efforts to involve the generators and fund implementation projects has paid off in terms of improved generator participation and satisfaction with the set-aside. Six of the P2 projects implemented at LANL in FY96 are expected to result in the following yearly waste reductions: 8 m^3 of TRU; 18 m^3 of MLLW; 2,327 kg of RCRA; and 162.6 m^3 of LLW. The

seventh project resulted in a one-time waste avoidance of 685 m^3 of LLW and 11,476 ft^3 of industrial waste. This single project, which was completed in FY96, resulted in a cost avoidance of $2,044,120. LANL was very successful in obtaining generator support and funding by leveraging the use of GSAF funds for project implementation. During FY96, LANL invested $944,600 in cost-shared P2 projects; $444,500 from GSAF funds and $500,100 from mission program funds. However, because LANL could not assess fees on waste streams for which generators were paying their own waste management costs, e.g. some environmental restoration wastes, those generators were not eligible to receive GSAF funding. LANL has indicated that programs and groups within the Laboratory have historically found it difficult to use their operating funds for pollution prevention projects -- those generators would benefit from having GSAF funds available for implementation of waste-reducing process changes.

SNL/NM used the largest portion of their collected fees for Pollution Prevention Opportunity Assessments (PPOAs) and specific generator assistance. An additional portion of the fees was used to fund a lab-wide team of generator representatives who determine the direction of the P2 program and the use of collected fees. SNL/NM has had to expend resources responding to generator's concerns and issues related to GSAF. However, the focus of the P2 program at SNL/NM is gradually shifting from PPOAs to project implementation. This shift is expected to substantially increase the cost-benefit of the program by funding projects that reduce waste, thereby improving generator perception of the P2 program and use of resources. Projects implemented using GSAF fees are expected to result in a yearly waste reduction of 70 kg of RCRA waste and 300 kg of LLW.

Each of the pilot sites also reported an increase in generator awareness as a result of the GSAF program. Although this type of benefit is difficult to objectively quantify, it can be subjectively evaluated on the basis of a number of indicators. These indicators include such things as increased number of calls to the P2 staff requesting assistance; increased number of project proposals submitted for funding consideration; improved quality of project proposals; and increased number of generators implementing P2 projects on their own. SNL/NM also conducted a P2 survey which assessed the impact of the GSAF program, and received an 86% response rate. Of those responding that they had implemented some type of P2 in their operations, 31% indicated that the primary reason for doing so was the fees. In one notable case, the inclusion of the fees in the cost/benefit analysis was enough to sway the project in favor of using launderable personal protective equipment (PPE) versus disposable PPE -- this change is expected to reduce LLW by 2300 kg/yr.

A modification to the existing waste tracking system was required at the pilot sites in order to provide more detailed monthly information to each generator on the amount and types of waste generated by their facility and/or operation. Sites that already had a "chargeback" system in place needed to make modifications to comply with the guidelines for the pilot. This tracking system modification was very labor-intensive (on the order of 1-2 FTEs required for system set-up), however, and accounts for the high administrative costs

encountered at several of the pilot sites during the first year of operation. Specifically, tracking waste generation to the Cognizant Secretarial Offices (CSO) funding the work is complicated at sites where many CSOs operate numerous facilities. In contrast, SRS required minimal effort to expand their waste tracking system to incorporate GSAF parameters, due to the fact that only two CSOs operate there, and the tracking system at SRS already contained most of the information that was needed. These administrative costs are expected to decrease substantially in the second (and future) years, particularly if all programs are allowed to be charged. A minimal effort will be required to maintain the existing system.

Pilot Obstacles - Common Issues & Their Resolution

A number of logistical barriers hindered implementation of the GSAF program at the participating sites. These obstacles varied in magnitude depending on the complexity of the program structure. Most notable were the difficulties encountered at those sites that had numerous CSOs and/or program operations, particularly since financial guidelines restricted the application of fee collection to only certain generators (DP, EM, ER, NE) rather than across-the-board to all waste generators. At sites where additional CSOs operate and generate waste, there was some resistance on the part of those generators that were assessed fees because not all generators were treated equally. In addition to this issue of "fee equity", the administrative burden is substantially higher at those sites that must also track whether each generator in each facility is in the 'fee' or 'no-fee' category as opposed to only tracking the amount of fees assessed on all generators.

Issues encountered at the pilot sites tended towards common themes. First and foremost was the development and documentation of the GSAF system itself; i.e., the protocols for capturing valid information, assessing fees, maintaining accounting systems, and project selection and fee disbursements. While all pilot sites experienced some difficulties in this area, resolution was very site-specific and dependent on the particular systems already in place at the site. Other common themes included development of a tracking system to correctly identify and measure waste generation at each facility; assessing fees on waste generated by indirect and 'Work-for-Others' (WFO) accounts; developing project selection criteria; overcoming generator resistance; and measuring GSAF program results. Details on site-specific issues and resolutions can be found in the attached site reports. A summary of common issues and their resolutions are as follows:

Development and implementation of waste tracking systems

- The tracking system should include a means to check the validity of charge codes in real time before waste is accepted for processing. This type of data quality check eliminates

the need to manually correlate and/or backtrack waste to the correct generating organization.

- Cost Accounting Standards (CAS) require that consistent rates for a particular form of waste be applied to all generators at a facility, regardless of the amount of waste generated. However, CAS does not prohibit the application of different fees for different waste streams -the waste tracking system should be capable of differentiating between different waste streams (as a subgroup of waste type), to allow for this.
- The system should automatically check whether a particular waste is in the 'fee' or 'no-fee' category (based on the generating CSO and/or the type of waste manifested). Setting up the database system to automatically sort on this field eliminates unnecessary invoice tracking.
- Debits from generator accounts should be posted to the appropriate 'defense' versus 'non-defense' credit account.

Assessing fees on waste generated by indirect, 'Work-for-Others', and other CSO accounts

- Waste generated from "support" (indirect and overhead) activities are assessed the fee in proportion to the level of funding provided by the participating programs. "Defense" or "non-defense" funds were similarly segregated based on the level of support budgeted by the programs. Reviews were conducted to verify that that actual costs to the programs were consistent with the allocation basis.
- WFO agreements should include the cost of fees in the proposals, and should be charged fees.
- According to pilot guidelines, only those CSOs funded by the "Water and Energy" appropriations can be charged a set-aside fee - the CSOs participating in the pilot program are EM, ER, DP, and NE. Congressional approval is required to charge any additional CSOs funded by other appropriation bills.

Fee disbursement and project selection criteria

- Fees can be used to fund P2 projects and activities that reduce waste but cannot be used to augment existing budgeted P2 or mission programs.
- The costs of administering the GSAF program can be funded from collected fees at the discretion of the responsible Operations Office.
- Project selection criteria should incorporate several factors, such as amount and type of waste that is reduced; funding required; cost-sharing by generator; cost savings; project payback time; waste management hierarchy; etc.. The selection criteria should be widely distributed to ensure that viable proposals are received from all generators.
- Funding disbursements should follow the same ratio of 'defense' vs. 'non-defense' as fee accrual, when projects benefit the site as a whole rather than just a specific generator.

Overcoming generator resistance

- A notable lack of support exists in middle management. Even when upper management and the general work force support P2 concepts, whoever has a direct line of authority over the budget is resistant to providing operating funds for P2 projects unless there is a specific benefit to them. (Under the current system, waste handling costs are generally included in overhead accounts, and are not reflected in generator program budgets.) An upper-level mandate that makes line managers accountable for waste reduction results provides at least a partial solution. Allowing generators to retain any savings resulting from P2 projects that they implement would also improve the situation.
- Generators must be included in the entire GSAF process, from development of fee structure to project selection and implementation.
- A good marketing and publicity strategy should highlight GSAF as a potential project funding source. Generators should be provided P2 staff assistance in preparing proposals to access that funding.
- Programs and groups should be rewarded for successful projects that reduce waste -- these rewards can be a combination of monetary and public recognition awards.
- Focus generator attention on the fact that their indirect handling costs, as well as the assessed fees, will decrease when waste generation is reduced.
- The perception of the P2 program's value at the site noticeably improves when the focus of project funding is project implementation, rather than just PPOAs.

How to Effectively Measure GSAF program results

- Key indicators include fees collected and disbursed; waste reductions attributable to specific projects, i.e., 'before' and 'after' waste generation rates; implementation costs vs. savings on a per-project basis; and cost of administering the program compared to benefit.
- Measuring intangible benefits, e.g., increased awareness and accountability, is very difficult. The pilot sites relied on subjective anecdotal information and surveys to assess this impact of GSAF.

Performance Measures & Critical Success Factors

The Implementation Plan for the Generator Set-Aside Fee Pilot Program (attached) was issued on February 2, 1996. The Plan included goals and objectives, as well as specific performance evaluation criteria for measuring the success of both the pilot demonstration itself and the GSAF concept in general. The following section details those criteria and discusses the basis for declaring each a success. Also included in this section is a brief discussion of those factors which most clearly defined the probability of a successful GSAF program implementation.

12

The pilot demonstration has been successful in both resolving issues and obstacles, and effectively managing and using the collected funds.

Each of the pilot sites began collecting GSAF program fees on or about February 2, 1996, when final guidance was received from the Controller's Office. Fees were assessed retroactively to October 1, 1995, the date that the GSAF program officially began. Prior to February 2, each of the pilot sites had put a system in place to accurately track waste generation to the source; developed the financial accounting structure to manage GSAF fees; and determined waste fees rates. Efforts were also well underway to develop a fair and equitable project selection process. The fact that the pilot sites are successfully participating in the GSAF program demonstrates their ability to effectively resolve issues and obstacles. Each of the pilot sites has collected fees and implemented projects in FY96 to reduce waste. The pilot program collected approximately $1.9M in FY96 fees, and funded 27 projects with a total projected one-year savings in excess of $5.6 M. Because the pilot did not become active until mid-year, actual project implementation was limited by available site support resources and scheduling restraints. Approximately one third of all collected funds were carried over into FY97 for additional project implementation.

Implementation and administrative costs were high in the first year, but are expected to decrease substantially in FY97 and beyond. The percentage of total fees used to administer the program was higher than expected, mostly because total fee collection was lower than anticipated. This was primarily due to a lower total waste generation than forecasted. A contributing factor was the decision made at AL sites not to charge those generators that were paying their own waste management costs; because this occurred mid-year, AL sites did not have an opportunity to adjust fees accordingly. As more funds become available for project implementation (through lower administrative costs and higher per-unit fees), and more viable project proposals are submitted for consideration, the return-on-investment for the GSAF program will continue to increase.

The GSAF concept has been successful in reducing wastes and providing cost savings to DOE, and producing recognizable changes in awareness of and accountability to P2 at all levels of the organization.

The GSAF program has clearly demonstrated that waste can be reduced when funding is made available for P2 project implementation, as previously discussed in the *Results* section of this document. Due to the high costs associated with managing DOE waste, a clear correlation between waste reduced and costs avoided is evident. Even considering the first-year start-up costs and limited scope of this demonstration, the pilot has realized an almost $ 6 M return on an investment of less than $ 1 M, with additional savings expected in future years.

Measuring changes in awareness and accountability is more difficult to quantify, but is demonstrated by the increasing willingness of generators to use the P2 staff resources

available to them. An increase in requests for P2 assistance, as well as more (and better) proposals submitted for P2 funding consideration, have been documented at the pilot sites and demonstrate that generators are realizing the value of P2 concepts in their operations and recognizing GSAF as a project funding source. In addition, there appears to be an increase in the number of projects that are funded directly and independently by generators, especially in those cases where a viable proposal was submitted for GSAF funding but was placed on hold until additional GSAF funds were available.

Two factors clearly defined the probability of program success at each of the pilot sites. These factors were:

1. A true commitment to P2 from top management at the site, that was clearly communicated to all program levels. At Savannah River, this commitment was demonstrated by a clear directive to proceed; no questions asked, and no excuses tolerated - the Savannah River Site would reduce its waste generation and fully participate in the GSAF program. Because of this mandate, generators were willing, and in many cases anxious, to avail themselves of the P2 program staff's expertise and resources.
2. Generator participation in the total program effort, from program administration to project implementation. Each of the pilot sites now has a team in place that includes generator representatives as well as P2 staff. Team functions include such things as deciding the direction of the program, determining fee rates, setting project selection criteria and reviewing project proposals, and overseeing project implementation. Involving the generator in the decision-making process greatly reduces resistance to the GSAF program, and provides a better perspective on site issues to all participants.

One additional factor that helped facilitate the GSAF implementation process was advance notification to generators regarding their waste generation, and the fees that would be associated with that waste in the future ("mock billings").

The following list represents the minimum program elements necessary for successful GSAF program implementation:

1. A waste tracking system that must include the following:
   - charge/account code of the generating organization and/or facility;
   - amount and type of waste generated (LLW, MLLW, HAZ, etc., as well as the particular waste stream if necessary);
   - the CSO(s) which fund the generator's work;
1. A financial accounting system that must include the following:

- the fees associated with each different form of waste;
- a means of tracking debits (from the generator account) and credits (to the GSAF 'defense' and 'non-defense' pools), using GSAF B&R codes;

1. A reporting system that provides each generator with the total amounts of each waste generated and the associated fees debited from their accounts for the reporting period;
2. A process for soliciting and reviewing project proposals, and an established criteria for ranking them for funding consideration; and
3. A methodology for determining actual waste reductions and costs savings resulting from each project implementation.

Relationship of GSAF to 'Re-engineering' Initiative

DOE is currently undergoing a pilot transition of waste management responsibilities from EM to generator organizations. The GSAF team concludes that a need exists for a continuing P2 incentive and source of P2 implementation funds, regardless of which organization has responsibility for waste management. While returning the responsibility for waste management to the generator would improve accountability and hopefully provide an incentive for cost-effective waste reduction, this will not necessarily occur without some provisions. Contributing factors include:

1. Unless cost savings from waste reduction can be retained by the generator for use in mission program activities, the incentive at the generator level will not exist.
2. A large portion of the true waste management costs will remain in overhead accounts, and will be not be reflected in generator budgets. Paying only the remaining portion of waste management costs may not provide enough of an incentive to reduce waste.
3. Pollution prevention is not universally recognized as a high priority within the generator organizations, and projects are often unsuccessful when competing with other activities for funding.

A feature of the GSAF pilot helped us reach this conclusion. As mentioned before, certain generators were paying their waste management costs and were therefore exempted from paying the set-aside fee, based on the assumption that if the generator had to pay the cost of waste management, that in itself would provide enough of an incentive to reduce waste. There is no evidence from the pilot, however, that showed this to be the case. Those generators paying waste management costs (and not paying GSAF fees) did not prove to be more likely to initiate P2 projects than those generators who were not paying their own costs. There are other contributing factors, such as conflicting program priorities and a lack of funding sources for P2 projects, that limit the effectiveness of this as an incentive.

Once the transfer of waste management responsibilities is complete, it would not be an EM organization that is setting aside fees from other generators, but rather the landlord program (DP, ER, NE, etc.) setting aside some portion of their funds specifically for waste reduction projects. The GSAF demonstrates the importance of basing the fee on actual waste generation (type and amount), rather than as flat percentage of budget. In this way, those generators that are reducing waste would be rewarded with lower fees, and ideally would be allowed to retain and use those savings for mission programs activities. The idea of a CSO charging itself for waste management costs is not new; in fact, a precedence for this type of arrangement was set at Fernald, where the EM waste management organization charged the EM generators a fee based on the amount and type of waste that they generated. By having each generator pay the cost of their own waste, rather than have it funded as part of the overall site budget, an effective incentive to reduce waste was created.

Another benefit of the GSAF program has been its contribution to the development of the administrative and logistical systems needing for re-engineering. The waste tracking and financial systems devised for GSAF can also be used for the re-engineering effort. These systems, which are already in place at the pilot sites, can be easily modified to meet the needs of the re-engineering initiative. It should be noted that the reverse is also true; i.e., the financial systems that will need to be developed at other sites to support re-engineering could be easily modified to include GSAF elements. Lessons learned during the pilot can also facilitate the transition of waste management responsibilities at other sites - although the solutions will not be identical, the problems encountered will be similar.

Recommendations

It is recommended that the Department retain and encourage the use of the GSAF program, or a similar tool, at all DOE sites as a way to set aside funds specifically for implementing waste reduction projects and raising awareness. While one of the benefits of GSAF, which has been to make the generator aware of the actual amount and associated costs of their waste generation, may be accomplished with re-engineering, it will not guarantee that funds will be allocated for waste reduction projects. A true incentive to reduce waste will only exist when the generator feels both the actual life-cycle cost of generation and the monetary benefits of reduction.

Several changes should be made to improve the GSAF program structure as we proceed to full-scale complex-wide implementation. While these suggestions deal primarily with financial issues, it is important to note that top management support appeared to be the single most critical factor effecting success at the pilot sites. The suggestions are as follows:

1. Allow fee levy on all waste generation at the site, regardless of activity or funding source. Specific exemptions could be made, for example, for those wastes which are generated in insignificant amounts.
2. Allow each site, in accordance with their Operations Office, to determine fees based on the actual waste management costs and in line with their priority waste streams. The current rate structure does not adequately reflect the true cost to DOE of managing waste, nor does it provide a sufficient incentive in all cases to reduce generation.

Incorporation of these suggestions would reduce the resource requirements for administration of the program, and increase the benefit to DOE. This would make the GSAF a more efficient and effective system, both administratively and as an incentive for waste reduction, in that administration would be simplified; generators would consider it more equitable; and, fees would be high enough to both motivate generators and fund a significant number of P2 activities.